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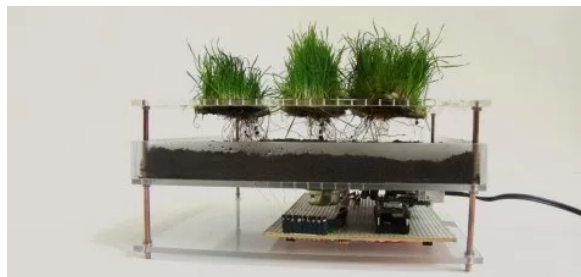
# The Post-digital era: towards a relational and sustainable approach

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**KEYWORDS:** *digital crafts, multimedia technologies, post-digital, relational interaction, smart home, soft technologies*

## Abstract

Multimedia technologies revolution has changed in the last years our ways of interface with the surrounding reality, transforming reality itself that is growing on a thin border with the virtual world. But, it still remain to understand which kind of technologies will be added (or probably substituted), to the other elements that constitute our living spaces, and consequently try to trace a evolution line of domestic interiors in the near future. A direct consequence of the “mediatic flood” is the “fight for perception”. On one hand perception still belongs to human body as its most properly peculiarity, but on the other hand this flood of stimuli make it thinner and liquefied. In the specific feeling of nullity proper of the microelectronic age it is included to be deceived about “self-radiation”, and also about our “self-perception”. Therefore, the impulse to escape from the vacuum of the absence of

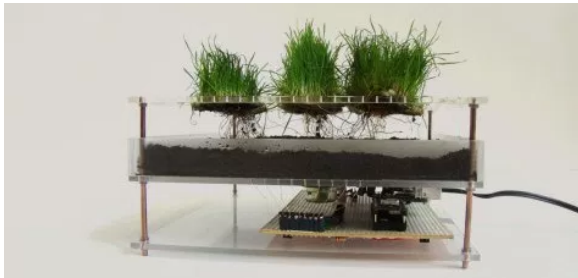


“To hear the grass growing”, FELD Studio, 2008.

perception drives us to know about our essence.

## 1. Rethink new-media technologies in everyday life

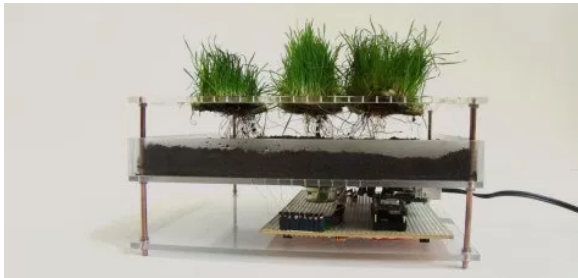
As technology changes so do society, the environment, and the practice of architecture. The globalizing “network society” has certainly forced architects to rethink the relationship of their work to new modes of production and construction, new patterns of movement and settlement, and new cultural priorities and above all a new kind of spaces and objects that will probably change radically our living environment. Through the twentieth century philosophers and historians have debated the nature of that relationship, leading in recent decades to a more nuanced view about their interaction and the degree to which technology itself is “socially constructed,” or at least culturally embedded and coevolving. The central question is the radical transformation of the space-time relation. On one hand space appears as a fluid, and on the other hand, time and its perception is compressed and extremely accelerated. This change has completely modified the rhythms of consumption, styles, and the way objects and lived spaces are used. Thus, in this context, design, as one of the most powerful aesthetic and socio-cultural expressions of the present civilization, has assumed different shapes, adapting and fragmenting itself to all the different components of society, and the global market. The diffusion of the idea of a “show-city”, together with the idea of a continuous moving city, due to the fluxes and the dynamic transformations more and more temporary and reversible, is creating a weave, and some times a very narrow union, between the forms and the practices of the exhibit and the forms and the practices of the spaces of entertainment and consumption. A fundamental element of this process are the different ways to stimulating the visual perception, that from static and Euclidean



“To hear the grass growing”, FELD Studio, 2008.

with classical proprieties of rational, uniform and long lasting order, becomes more and more dynamic and in some way non-euclidean, melting empathically, as observed by Marshal McLuhan in the 1973, with the most uncertain and extended spatial dimensions related to the sensorial proprieties of the touch, the taste and the hearing. As well, today everyday life flows over a background of a multitude of pictures and sounds, transmitted by millions of screens in a constant flux that could communicate endless quantities of information in a few minutes, also to all papers, journals, web sites, newsletters and blogs. Of course, this type of "bombing" goes over the domestic walls, in fact the use of "media facades" is more and more extended in cities, and this dimension of the (contemporary) domesticity continues in the public space, expressed paradoxically by the presence of the television screen.

Paul Virilio in his essay *The Third Interval* taken from the book *Open Sky*, originally published in 1997, claims that the new technologies of "telepresence" have created a new category of experience, one that transcends the limitations of the classical concepts of space and time. This new "interval" emerges from the illusion of simultaneity created by the latest digital communication technologies. The almost-instantaneous availability of "realtime" information challenges our conventional understanding of the experience of the here-and-now. At this point this thesis point out its fundamental questions: how new technologies changed, or will change the ways of inhabiting space, especially due to mutations of our customs? What does it means inhabit today or in the near future, and how interior spaces will evolve? What kind of evolution had objects in our houses in the last fifty years? Is interiors space perception changed due to the digital revolution? What kind of technological approach could be more correct due to the actual environmental and social mutations? One of the answers could be that the perishable objects that surround us less



"To hear the grass growing", FELD Studio, 2008.

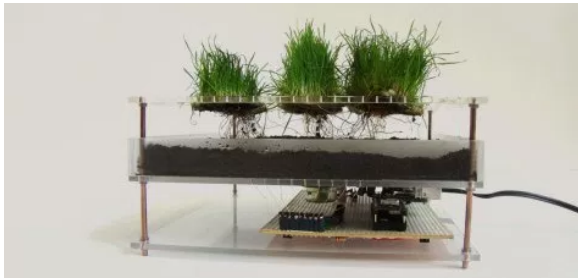
and less incorporate today meanings and memories. The objects and so thus the technologies are designed to be easily replaced and not to last. In fact, in our world the *objects landscape* changes so quickly, and a new generation of objects is always ready to substitute the previous one: more elaborate computers transform all the computers built a few years before into obsolescent technology, the microwave oven takes the place of the home fireplace. Thus, “if technologies, demands and preferences are changing, why is it necessary to remain attached to the things and technology of the past? The reason is that, the things from the past reestablish the connections between the different segments of our and collective history: saving things from insignificance means understanding ourselves better.” (Bodei 2009, 60)

In his last book, *Chaosmosis* (originally published in French as *Chaosmose* in 1992), the French philosopher Félix Guattari insists that technology must be defined more broadly, that we must abandon the simplistic opposition between the technical and the natural – the distinction between the tool and its human operator. Instead we must try to grasp the “machinic” as a continuum of related elements, containing particular technical devices inseparably embedded within the vast networks of materials, processes, systems and infrastructure (both technical and sociopolitical) within which they must inevitably operate. Cities have always represented and projected images and fantasies of bodies, whether individual, collective, or political. (Grosz 2001, 48) In this sense, the city can be seen as a (collective) body-prosthesis or boundary that enframes, protects, and houses while at the same time taking its own forms and functions from the (imaginary) bodies it constitutes. Simultaneously, cities are loci that produce, regulate, and structure bodies. This relation is not a simple one of mutual determination nor a singular, abstract diagram of interaction: it depends on the types of bodies (racial, ethnic, class, sexual)



“To hear the grass growing”, FELD Studio, 2008.

and the types of cities (economic, geographic, political), and it is immensely complicated through various relations of intrication, specification, interpolation, and inscription that produce “identities” for both cities in their particularity and populations in their heterogeneity. This is a relation of both productive constraint and inherent unpredictability: neither relation is able to take place on the one plane or in a regulated form. While the relations between bodies and cities are highly complex and thoroughly saturated with behavioral, regulative, psychical, legal, and communitarian components, nonetheless the corporeality of cities and the materiality of bodies – the relations of exchange and production, habit, conformity, breakdown, and upheaval – have yet to be adequately thought as corporeal. The corporeality, or materiality, of the city is of the same order of complexity as that of bodies. (Grosz 2001, 49)



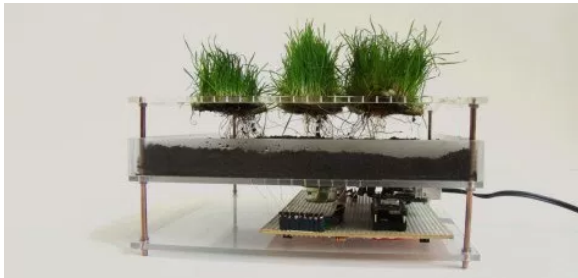
In the West, bodies and cities in their broad generality – and those discourses aimed at understanding them (cultural studies, urban studies, geography, as well as philosophy, psychology, and feminism) – are (as is always the case) undergoing major structural and pragmatic changes, changes necessitated and brought about by the complex linkage between global corporatism, the technological revolution in information storage and retrieval, and the transformation of global communications thereby effected. Since the introduction of the personal computer, since the computerization of economic transactions, since the advent of the Internet and instantaneous global communication through cellular phones, satellite networks, and the World Wide Web, transformations in how we understand ourselves, our bodies, our place in cities and communities, and our relation to the future have all been effected, transformations that are in the process of perhaps reconfiguring how we are in the world. (Grosz 2001, 50) Our simultaneous anxiety and joy reside in the extrapolated hopes

“To hear the grass growing”, FELD Studio, 2008.

and fears that an exponentially growing technology promises: its “gift” to us is an increasing edginess about what the future holds in store, whether it promotes our every fantasy to the status of the attainable or the real, or whether we and our hopes are transformed beyond recognition into something other than what we are now.

## 2. What about the “smart home”?

Since the Industrial Revolution and the rise of science fiction, the popular impulse has often been to regard technology as a socially derisive and potentially malign force. (Castle 2005, 4) In the 1990s, this was further exaggerated by the spectre of cyberspace with its promise of the domination of the virtual over the physical. It engendered visions of a horrific netherworld responded to by even the most subconscious of neuro twitches. Here, spatial design skills and adept application of digital technologies are pooled to aid interaction. This presents technology as a tool for exchange, cohesion and communication. Web and remote technologies may be the props of the contemporary world, but it is the underlying social forces of individualism and an unrelenting work culture that most often distance us from each other, rather than the gadgetry in our hands. Taking the form of installations and public art, interactive spaces and structures can offer a welcome respite. This is most often as an entertaining diversion, whether it relies on spectacle, wonder or unadulterated fun. The interaction between viewer and what is viewed can be physical or remote, whether the object responds to a bodily presence or an electronic device such as a mobile phone. At every level, it encourages us to leave our isolated self and interact with a greater social group, perhaps merely for the joy of seeing a chandelier reverberate with light in a gallery, or contributing to an interactive sculpture on an urban scale. Interaction is not just confined to the art world. It provides tenable and, very often, remarkable solutions for



“To hear the grass growing”, FELD Studio, 2008.



the work place, leisure sector, retail and the domestic. As Mike Weinstock acknowledges in his recollection of EM Forster's refrain "Only connect!", connection has to be consciously sought out and worked towards. He gives the example of UN Studio's Möbius House, where the architecture enfolds the family in a continuous surface that takes in shared and separate living spaces, enabling the occupants to be simultaneously alone and together. (Castle 2005, 4)

This article investigates the reality that the perceptual boundaries between the virtual and physical worlds have been broken, and asks how architecture and its tasks can creatively adopt a fourth dimension, that of digital technologies. Their time-based nature is increasingly producing socio-spatial effects that challenge architecture's traditional identity.

What's clear is that, independent of architecture, this fourth dimension is already inexorably transforming the previously understood identity of space, as a penumbra of new technologies – WiFi and other features of pervasive computing like Bluetooth, RFID tags and GPS – support the spatialisation of time. (Bullivant 2005, 5)

"Multi-mediated" interactive design is already entering every domain of public and private life as a spatial medium, revolutionizing and reinventing our work, leisure and domestic spaces. Social contexts are dominated by the blurring of boundaries between work and play, information retrieval and use. However, as Malcolm McCullough, author of *Digital Ground* published in 2004, points out, pervasive technology does not obviate the human need for place. (Bullivant 2005, 5)

### 3. "Fourth kingdom" objects and "Soft Technologies"

This transformation in technology – let us call it computerization for short – is not simply the creation of a new tool or device more sophisticated than the rest but funda-



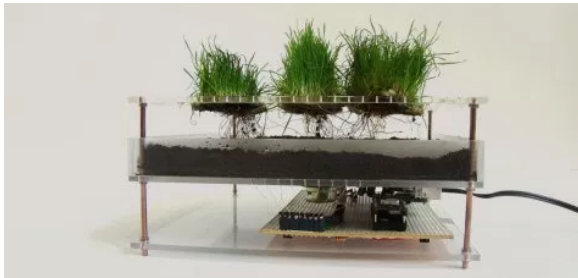
"To hear the grass growing", FELD Studio, 2008.



mentally the same in nature. Rather, global computerization is a mode of transformation of the very notion of tool or technology itself. The space, time, logic, and materiality of computerization threaten to disrupt and refigure the very nature of information and communication, as well as the nature of space, time, community, and identity. (Bullivant 2005, 5)

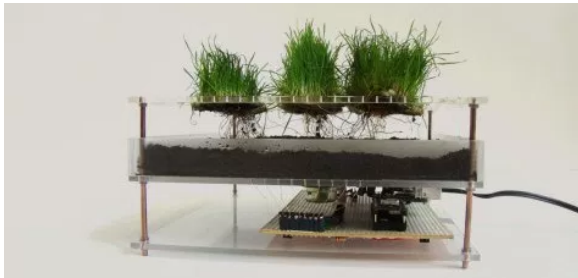
These technologies make possible knowledge/sciences, modes of art and representation, forms of communication and interaction, that not only are reconfiguring social and personal life but are also, in a fundamental sense, beyond the knowledge and the control of individuals and communities. These technologies, whose limits are unknown by their designers and foremost researchers, have become Futures, Cities, Architecture subject to historical, perhaps even evolutionary processes or laws that we do not, and perhaps even cannot, know in advance. Computerization transcends the tool or mere cultural innovation, insofar as it has begun an inherently unforeseeable trajectory in global life. Such unforeseen trajectories are not new; they are the forces that shape global transformation, whether dictated by shifts in polar ice caps or the production of nuclear weapons. Technological transformation is not inherently different in its global effect. This is why it may be understood more in the long-term horizon of evolution rather than in the short-term horizon of development or historical change. (Grosz 2001, 51)

These technologies have served not to transform bodies in any significant way – at least not yet – but to fundamentally transform the way that bodies are conceived, their sphere of imaginary and lived representation. They promise (and for some they achieve) the fantasy of action, communication, and connectedness at-a-distance, the fantasy of an alternative or virtual existence that may bypass the gravity and weightiness of the body itself: they have mediated spatial relations through the compression of temporal relations, they have trans-



“To hear the grass growing”, FELD Studio, 2008.

formed interaction and communication through screen and virtual mediation, they have transformed the notion of community through selective global expansion. Bodies clearly are, and always have been, the objects of prosthetic transformation and supplementation, of virtual enhancement and technical mediation. Computerization does not transform this prosthetic hankering; rather, it transforms its degrees of intimacy with the body, the size and nature of prosthetic intervention: micromachines cleaning out veins and arteries, microcomputers pulsating as heart or lung enhancements. It transforms an imaginary anatomy well beyond its technological capacities, yielding the fantasy of the interchangeability, even transcendence, of the body and its corporeal configuration. (Grosz 2001, 51)



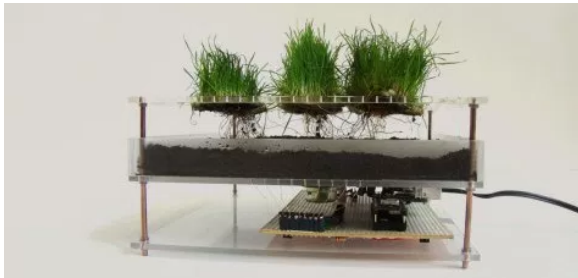
For instance, the discovery of the real identity of the single object becomes more pressing, where the fusion or the miniaturization canceled the same object. This back to the object is not already taking place, could not be realized for products that have just found their structuring, but will be applied to other sectors where there is already a possibility of a formal representation. In this manner, we assist and will assist in the future to a recovery of some kinds of crafts that are apparently dead or that have not found their right utilization. Therefore, to the preeminence of the industrial object, probably there will be a new crafts time, maybe more linked to the world of art or to the discovery of natural materials forgotten in the last years and now rediscovered. Not only, there will also be a rediscovery of symbolic factors that once were inherent to many objects. On the other hand, this last sentence can also be valid for many recently manufactured products; in fact it is impossible to not feel the symbolic value of objects like a telephone, or a personal computer, or of a Swatch clock and more over household appliances. (Turkle, 2007) We can say that we are in front of the origin of a "fourth kingdom"

"To hear the grass growing", FELD Studio, 2008.

(Francalanci 2006, 22) of the objects, and it becomes impossible to image them as prophetic instruments, the extension of the human body (the “objects *membres-humains*” of Le Corbusier), and of the human mind, but as “others” from us, as partner-instruments: moreover they seem to be like autonomous organs, and the world of objects will be more and more similar to a fourth kingdom, beside the mineral, vegetable and animal kingdom. Eventually *type object* and *emotional object*, find a common interest in the same wish of surpassing technique in its banal manifestations, instead promoting a technological *imaginarium*, that will transform technology to human and vice versa.

In fact, saving objects from their insignificance or from their instrumental use means better understanding ourselves and the events into which we are involved because things set synapses of sense between the different segments of individual and collective histories, between human civilization and nature. “Super technology is going to ask for super tactility”, interiors and products will need more tactile designs as the use of computers and screens makes us crave a sense of touch, trend forecaster Li Edelkoort predicts in this last movie filmed at Dezeen Live.<sup>[1]</sup>

“The more screens we have the more our figures are afraid we’re going to disappear”, she says. “I feel it already in my fingers that they want me to touch lots of things so I don’t loose contact with touch”. Edelkoort therefore predicts that textiles will be increasingly important in interior design, supporting the increasingly nomadic lifestyle that mobile technology permits. One of the strongest long term trend of the future is probably the *hybridization*. We will navigate at the border of organic & digital, intuition & interface. A world where technology and human will be one. Here succeeding some representative case studies.

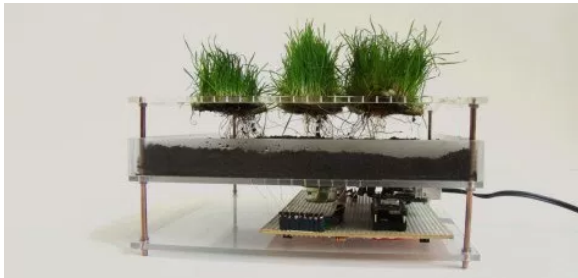


“To hear the grass growing”, FELD Studio, 2008.

### ***Rewriting Traces***

FELD Studio, 2008

What would happen if cause and effect could be rearranged? Traces are left on or by objects whenever we use them. These traces tell us something about what has happened before. Some traces are more or less noticeable than others, some are intentional and some not, some we want and some we don't. This reactive tablecloth communicates and interacts with the participant through its material and surface, the surface texture changing depending on the way we interact with it. The effect of pressure or heat through a cup or hand results in a change of colour. This change can happen either at the point of action or at an unexpected location of the tablecloth. The reaction to our actions runs through distances connecting the people that use it in unexpected ways. The textile of the tablecloth consists of three layers. The bottom layer registers the presence of objects on the tablecloth using pressure sensors. The middle layer is woven with high resistance conductive yarns that heat up individually when current flows through them. The upper layer was screen printed with thermochromic pigments to allow a colour change when it is heated.



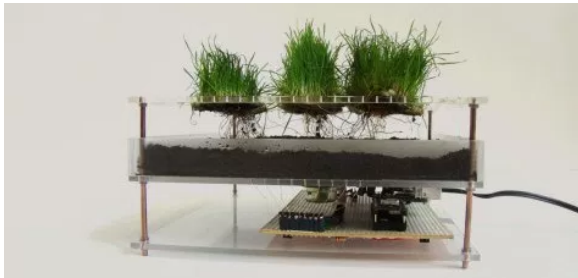
### ***To hear the grass growing***

FELD Studio, 2008

Reactive environment which generates soundscapes according to the growth of grass. Feld is a German studio specialized in "digital crafts", they design some digital objects connected to the physical world, or like here to the nature. We see more and more works that connect nature and technology, it's like a will of find another way to the eternal debate digital vs craft/traditional. Both are necessary, and when both are connected, they can bring us great experiences. In this project, an arduino based computer is connected to the grass, for translate into a heart beat the growing phenomenon. An original way to realize when your plants need attention or when they're

"To hear the grass growing", FELD Studio, 2008.

in good mood. The continual process of growth is something which generally escapes our ordinary senses. It is something which can be recognised only over an extended period of time. If a person takes care of a plant, they recognise growth over a period of days or weeks, this application transfers the growth of the plant into a medium which we are always able to interpret, that of an ever changing soundscape. Through the installation, the growth of the grass generates different electrical pulses similar to heartbeats. The more advanced the growth of the plant, the slower and stronger the pulse develops. The application consists of three physical layers, the top layer is the growing grass and beneath it the root system, below these is the technology which measures the growth and generates the sound. Over time, and with care and attention, the roots grow more and more, creating a complex root-system. A microcontroller is able to measure the conductivity of the root system, the growing media and the solutions of nutrients which surround them and when coupled with an amplifier, generates clicks and pulses in different frequencies. Care, light, nutrients and water, as well as the sequence of connectivity between the growing elements of the grass are thus responsible for creating the ever changing and growing soundscape. This prototype tries to compare nature and technology to point out parallels. It allows us to pay attention to things which would seem unimportant or unperceivable to us without such a device.



### ***Objects made from mind***

FELD Studio, 2010

This work comprises a series of sculpted computer keyboards which have been sketched out by a series of colleagues and friends, who use computers for different reasons in their daily lives. The physical manifestations, as recreations of the free-hand sketches show the blurriness of the mental representations of these devices with which we spend so much of our time.

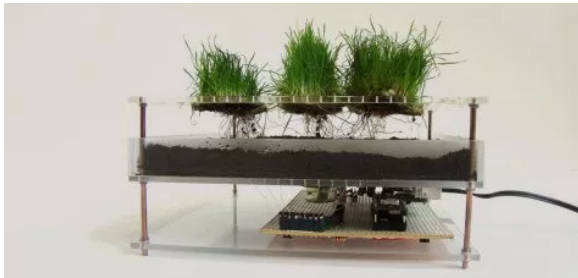
"To hear the grass growing", FELD Studio, 2008.

Testament to how much the ways we interact with the world govern our perception of it, the 3D milled perfection of the keyboards, with the utter lack of detail, demonstrates a stark contrast between the objects in our minds and those in reality “Objects made from mind” looks at the incompleteness of the internal representation of the external world.

### ***Unter Strom***

FELD Studio, 2010

With which senses do we perceive electric current? How does electric current influence our behaviour and physiological condition? This textile describes a wearable sensor to ‘feel’, detect and indicate electricity. I want to combine material behaviour with human condition to enable communication and to raise specific questions regarding increasing fields of electronic technology and our electrified behaviour. A woven textile uses electrical energy from its surrounding via influence – by human activity as well as electric fields nearby – and passes it in a comprehensible way to the user. For testing it, the textile is attached at the shoulder of the participant and has exposed yarns that represent hair. If he or she is acting fast, the textile hair stands higher and higher – it charges up until it wants to discharge in its surroundings. If the material received a huge quantity of electric energy, it gets more inflexible. After that it is able to give up its electricity and consequently can interrupt technical devices or give the wearer small electric shocks, after he charged it. This project demonstrates a possibility to enhance and sensitise materials to explore changing in perception. Figuratively the textile caricatures the fear of electric fields. The material probe describes electric current as something natural within different manifestation. This fabric could ask questions about cultural turns that will emerge from our constantly growing need for acceleration and energy.



“To hear the grass growing”, FELD Studio, 2008.



***Demain est un Autre Jour***

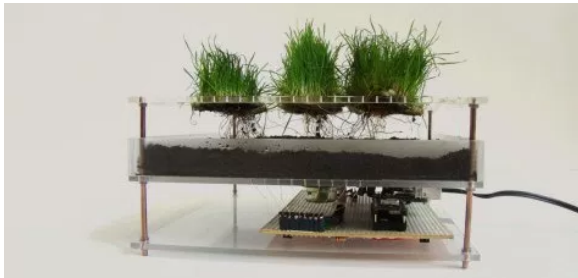
Video weather station, Mathieu Lehanneur, 2011

Lehanneur provides food for thought regarding the permanence and impermanence of things, about the principles of uncertainty, ineluctability and spirituality, allowing everyone to be a day ahead of time itself... Originally intended for use in a hospital, this device eludes the course of time by offering everyone the opportunity to see tomorrow's sky. Conceived from weather information gathered in real time on the Internet, the luminous image of the sky is diffused through a honeycomb network, appearing both like a sculpture and a celestial globe.

***Water Light Graffiti***

Antonin Fourneau, 2012.

Mixing water, technology, and public art, the Water Light Graffiti project is at once fluid and beautiful while at the same time transitory and digital. The project was conceived at Digitalarti, a lab dedicated to the digital art community at large. Welcoming artists, organizers, galleries, and collectors, the site and quarterly print magazine invites the public to share experiences, information and digital tools. An artist in residence at Digitalarti Artlab, Antonin Fourneau created the Water Light Graffiti project. As described by the artist, the project surface is designed of thousands of LED lights which are illuminated by contact with water. To activate the lights, one can use a paintbrush, spray bottle, sponge, or just about anything damp. The artist writes, "Water Light Graffiti is a wall for ephemeral messages in the urban space without deterioration. A wall to communicate and share magical in the city."



"To hear the grass growing", FELD Studio, 2008.

**Conclusions**

The new domestic landscape is now strictly related to this "fourth kingdom". The relation between space and the objects is now of a different nature, the same as the relation between humans and objects. Proba-



bly the most important mutation of the interiors world would not be in the changing of the space itself, but in the relation between humans, objects, spaces and new technologies. We can may conclude that the real challenge of designers and architects today will be to shift from a “multimedia” approach to a “multimodal” one. Try to stop an archetypical action and be able to supervise the future of the project; maybe we can talk about a historicization of the technological object.

## References

Bodei, R. (2009). *La vita delle cose*. Roma-Bari: Laterza.

Bullivant, L. (2005, January/February). Introduction. *Architectural Design, Special Issue 4dspace: Interactive Architecture*, Vol. 75, 5.

Castle, H. (2005, January/February). Editorial. *Architectural Design, Special Issue 4dspace: Interactive Architecture*, Vol. 75, 4.

Francalanci, E. (2006). *Estetica degli oggetti*. Mulino.

Grosz, E. (2001). *Architecture from the Outside. Essays on Virtual and Real Space*. Foreword by Peter Eisenman. Cambridge, Massachusetts London, England: The MIT Press.

Guattari, F. (1995). *Chaosmosis: An Ethico-Aesthetic Paradigm*. Indiana University Press.

Lehanneur, M. (2009, May/June). Domestic Micro-Environments. *Architectural Design, Special Issue: Energies*, Vol. 79, Issue 3, 42-4.

O'Neill, S. (2009). *Interactive Media: The Semiotics of Embodied Interaction*. Springer.

Türcke, C. (2012). *La società eccitata. Filosofia della sensazione*. Milano: Bollati Boringhieri.

“To hear the grass growing”, FELD Studio, 2008.



Turkle, S. (Edited by). (2007). *Evocative objects: things we think with*. Cambridge: MIT Press.

Virilio, P. (1997). *Open Sky*. London: Verso.

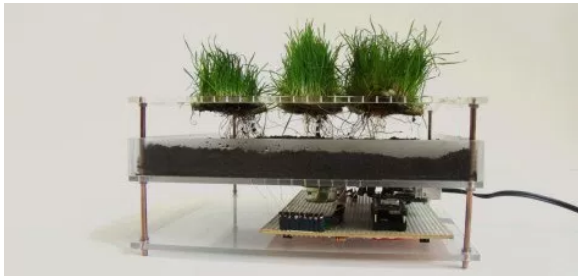
#### Footnotes (↵ returns to text)

1. Dezeen Live was a series of discussions between Dezeen editor-in-chief Marcus Fairs and a number of designers and critics that took place at design exhibition 100% Design during London Design Festival this September.↵

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2008.